

Attorney Docket No.: DEX-0075
Inventors: Macina and Sun
Serial No.: 09/618,596
Filing Date: July 17, 2000
Page 4

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or bodily fluid from a normal human control, wherein an increase in the levels of the CSG determined in step (b) as compared to levels of the CSG measured in a sample of cells, tissues or bodily fluid from a normal human control is associated with a cancer that is progressing and a decrease in the determined levels of the CSG in the first sample as compared to the second sample is associated with a cancer that is regressing or in remission.

REMARKS

Claims 1 through 5 are pending in the instant application. Claims 1 through 5 have been rejected. Claim 1-3 have been amended. No new matter has been added by these amendments. Reconsideration is respectfully requested in light of these amendments and the following remarks.

I. Rejection of Claims 1-5 under 35 U.S.C. § 112, second paragraph

The rejection of claims 1-5 under 35 U.S.C. § 112, second paragraph, has been maintained, as the Examiner suggests that the recitation of CSG is indefinite. Accordingly, in an earnest to

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advance the prosecution of this case and in accordance with the Examiner's suggestion, Applicants have amended claim 1 to recite "colon specific gene (CSG)". Withdrawal of this rejection is therefore respectfully requested.

II. Rejection of Claims 1-5 under 35 U.S.C. § 112, first paragraph

Claims 1 through 5 have been rejected under 35 U.S.C. § 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor, at the time the application was filed, had possession of the claimed invention. Specifically, the Examiner suggests that Applicants did not point out in the amendment filed July 5, 2001, where support for amendments made to the claims can be found in the specification.

With respect to the phrases "a second sample of cells" and "first sample as compared to the second sample", it is respectfully pointed out that the claims 2 and 3 have been amended to delete these phrases. With respect to the phrase "comprising a polynucleotide sequence or its complement capable

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of hybridizing under stringent conditions with SEQ ID NO:1 or a polypeptide encoded thereby, support for this amendment is provided in the specification at page 3, lines 17-29, and page 7, lines 2 through 15.

Accordingly, withdrawal of this rejection is respectfully requested.

III. Rejection of Claims 1 and 2 under 35 U.S.C. § 102(b)

Claims 1 and 2 have been rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent 5,733,748. Claims 1 and 2 have also been rejected under 35 U.S.C. § 102(b) as being anticipated by WO 96/39419. The Examiner suggests that these references disclose methods for diagnosing the presence of colon cancer and metastases of colon cancer which are based on determining the levels of a CSG comprising a polynucleotide sequence such as GCT (nucleic acid residues 9-11 and 13-15 of Figure 1 of these references) that would hybridize under stringent conditions with SEQ ID NO:1. Applicants respectfully traverse this rejection.

Contrary to the Examiner's suggestion, none of the 13 colon specific genes taught in the cited prior art references exhibit sufficient homology to the CSG of the present invention, namely

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SEQ ID NO:1, to hybridize under stringent conditions with SEQ ID NO:1. As evidence of this fact, Applicants are providing herewith a definition from the Life Sciences Dictionary of hybridization stringency. Hybridization stringency is defined as:

the percentage of nucleotides which must match on two unrelated single-stranded nucleic acid molecules before that will base pair with each other to form a duplex, given a certain set of physical and chemical conditions. . . .In general, if the percentage of matching nucleotides is lower than 70 percent, the two single-stranded nucleic acid molecules are considered nonhomologous and any hybridization is considered nonstringent.

Since the percentage of matching nucleotides of the colon specific genes taught in the cited prior art references and SEQ ID NO:1 of the instant invention is lower than 70 percent (see BLAST searches provided herewith), any hybridization occurring would be considered nonstringent by those of skill in the art. Accordingly, the prior art references do not teach a CSG comprising a polynucleotide sequence or its complement capable of hybridizing under stringent conditions with SEQ ID NO: 1 as claimed.

MPEP § 2131 is quite clear; to anticipate a claim, the reference must teach every element of the claim. Since the cited prior art references do not teach every element of the claims,

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they cannot anticipate the claimed invention. It is therefore respectfully requested that this rejection be withdrawn.

IV. Rejection of Claims 1-5 under 35 U.S.C. § 103(a)

Claims 1 through 5 have been rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 5,733,748 and WO 96/39419. The Examiner suggests that it would have been *prima facie* obvious to one of ordinary skill in the art at the time the claimed invention was made to implement the methods of staging and monitoring colon cancer in a patient for changes in staging as well as for the onset of metastasis considering the methods of diagnosing the presence of colon cancer and metastases have been well established. Applicants respectfully traverse this rejection.

MPEP 2143 is clear; to establish a *prima facie* case of obviousness invention, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine the reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art

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reference must teach or suggest all the claim limitations.

As discussed in Section III, *supra*, neither of the cited prior art references teach the CSG of SEQ ID NO:1 nor a sequence that would hybridize under stringent conditions with SEQ ID NO:1. Nor is there any suggestion in these references of a CSG of SEQ ID NO:1 or a sequence that would hybridize under stringent conditions with SEQ ID NO:1. Accordingly, these references do not teach or suggest all the claim limitations. These references also provide no reasonable expectation of success that a CSG of SEQ ID NO:1 or a sequence that would hybridize under stringent conditions with SEQ ID NO:1 would be useful in diagnosing, monitoring staging and imaging cancer. There is also no motivation or suggestion provided in these references to modify their teachings to use a CSG of SEQ ID NO:1 or a sequence that would hybridize under stringent conditions with SEQ ID NO:1 to diagnose, monitor, stage or image cancer. Thus, the cited combination of references cannot render obvious the instant claimed invention.

Withdrawal of this rejection under 35 U.S.C. § 103(a) is therefore respectfully requested.

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V. Supplemental IDS

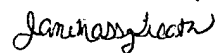
A Supplemental Information Disclosure Statement is being provided herewith for consideration by the Examiner.

VI. Conclusion

Applicants believe that the foregoing comprises a full and complete response to the Office Action of record. Accordingly, favorable reconsideration and subsequent allowance of the pending claims is earnestly solicited.

Attached hereto is a marked-up version of the changes made to the specification and claims by the current amendment. The attached page is captioned "Version with Markings to Show Changes Made."

Respectfully submitted,



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Date: January 25, 2001

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VERSION WITH MARKINGS TO SHOW CHANGES MADE

In the Claims:

Please amend the claims as follows:

1. (amended) A method for diagnosing the presence of colon cancer in a patient comprising:

(a) determining levels of a colon specific gene (CSG) comprising a polynucleotide sequence or its complement capable of hybridizing under stringent conditions with SEQ ID NO: 1, or a polypeptide encoded thereby, in cells, tissues or bodily fluids in a patient ; and

(b) comparing the determined levels of the CSG with levels of the CSG in cells, tissues or bodily fluids measured in a normal human control, wherein a change in determined levels of the CSG in said patient versus levels of the CSG measured in a normal human control is associated with the presence of colon cancer.

2. (amended) A method of diagnosing metastases of colon cancer in a patient comprising:

(a) identifying a patient having colon cancer that is not known to have metastasized;

(b) determining levels of a CSG comprising a

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polynucleotide sequence or its complement capable of hybridizing under stringent conditions with SEQ ID NO: 1, or a polypeptide encoded thereby, in a ~~first~~ sample of cells, tissues or bodily fluid from said patient; and

(c) comparing the ~~determined~~ levels of the CSG determined in step (b) with levels of the CSG measured in a ~~second~~ sample of cells, tissues or bodily fluid from a normal human control, wherein an increase in ~~determined~~ levels of the CSG ~~in the first sample~~ determined in step (b) as compared to ~~the second sample~~ levels of the CSG measured in a sample of cells, tissues or bodily fluid from a normal human control is associated with a cancer that has metastasized.

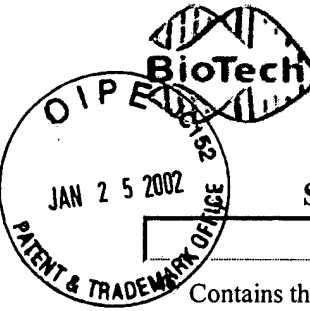
3. (amended) A method of staging colon cancer in a patient having colon cancer comprising:

(a) identifying a patient having colon cancer;
(b) determining levels of a CSG comprising a polynucleotide sequence or its complement capable of hybridizing under stringent conditions with SEQ ID NO: 1, or a polypeptide encoded thereby, in a ~~first~~ sample of cells, tissues or bodily fluid from said patient; and

(c) comparing the ~~determined~~ levels of the CSG determined in step (b) with levels of the CSG measured in a

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~~second~~ sample of cells, tissues or bodily fluid from a normal human control, wherein an increase in the ~~determined~~ levels of the CSG ~~in the first sample determined in step (b)~~ as compared to ~~the second sample~~ levels of the CSG measured in a sample of cells, tissues or bodily fluid from a normal human control is associated with a cancer that is progressing and a decrease in the determined levels of the CSG in the first sample as compared to the second sample is associated with a cancer that is regressing or in remission.



LIFE SCIENCE DICTIONARY

Search Results

Search Terms: AND Search Definitions:

Contains this ☐ Begins with this ☐

Searching Category	User input query
Searched Word	hybridization
Number of Results	14

1. 1. colony hybridization

Definition:

A genetics lab technique used to identify which colonies of bacteria on an agar plate contain a particular sequence of DNA or a particular gene. The technique involves pressing a nylon or nitrocellulose membrane onto the plate so that each colony contributes a small smudge of itself to the membrane, then treating the membrane with chemicals and heat, then washing the membrane with a labeled probe to find the specific DNA sequence. The smudges which are indicated by the probe are then compared back to the colonies on the agar plate. This technique is often used in conjunction with experiments involving the making of genomic libraries.

2. competition hybridization

Definition:

A lab technique used to determine how similar two strands of single-stranded nucleic acids are to each other by putting them with a third strand (called a standard) and observing how well they can bond with each other to become double-stranded (how well they hybridize).

3. cross-hybridization (cross hybridization)

Author: Susan A.Hagedorn

Definition:

The hydrogen bonding of a single-stranded DNA sequence that is partially but not entirely complementary to a single-stranded substrate. Often, this involves hybridizing a DNA probe for a specific DNA sequence to the homologous sequences of different species.

4. DNA hybridization

Definition:

A lab technique used to find out how closely related two or more separate strands of DNA from different species are to each other. The technique involves radioactive labeling.

5. DNA-RNA hybridization

Definition:

A type of hybridization. In this case, a strand of DNA is joined with a complementary strand of RNA to form a double-stranded molecule (or one which is partly double-stranded, if one of the original single strands is shorter than the other).

6. FISH (fluorescence in situ hybridization)**Definition:**

A physical mapping approach that uses fluorescent tags to detect hybridization of probes with metaphase chromosomes and with the less-condensed somatic interphase chromatin.

7. hybridization**Definition:**

1. The process of joining two complementary strands of DNA or one each of DNA and RNA to form a double- stranded molecule.
2. The mating of individuals from different species or sub-species.

8. hybridization stringency**Definition:**

The percentage of nucleotides which must match on two unrelated single-stranded nucleic acid molecules before they will base pair with each other to form a duplex, given a certain set of physical and chemical conditions. The hybridization stringency is used to determine when a hybridization probe and a target nucleic acid will come together, and can be set by the researcher by varying the conditions. In general, if the percentage of matching nucleotides is lower than 70 percent, the two single-stranded nucleic acid molecules are considered nonhomologous and any hybridization is considered nonstringent.

9. in situ hybridization**Definition:**

Use of a DNA or RNA probe to detect the presence of the complementary DNA sequence in cloned bacterial or cultured eukaryotic cells.

Also used for locating genes on chromosomes. The process is:

1. Prepare microscope slide with cells in metaphase of mitosis.
2. Treat slide with a weak base. Thus denaturing the DNA.
3. Pour radioactively labeled probe onto the slide.
4. Expose slide to photographic emulsion for a few days or weeks.
5. Develop emulsion.

10. introgressive hybridization**Definition:**

The incorporation into a population's gene pool of genes from a different species.

11. Northern blot (Northern hybridization, Northern blotting)**Definition:**

A technique similar to Southern blotting, though it is used for RNA. In this technique, RNA fragments are transferred from an agarose gel to a nitrocellulose filter, where the RNA is then hybridized to a radioactive probe.

12. probe (hybridization probe)**Definition:**

A single-stranded nucleic acid molecule with a known nucleotide sequence which is labeled in some way (for example, radioactively, fluorescently, or immunologically) and used to find and mark certain DNA or RNA sequences of interest to a researcher by hybridizing to it.

13. Southern blot (Southern hybridization, Southern blotting)**Definition:**

A technique used for searching for a specific DNA fragment. The process is as follows:

1. Separate DNA fragments by gel electrophoresis
2. change pH of gel to basic, thus allowing disruption of H-bonds
3. blot gel with nitrocellulose paper
4. heat paper so as to fix DNA fragments
5. probe with labeled messenger RNA or cDNA
6. wash
7. complementary mRNA/cDNA fragments will have hybridized.

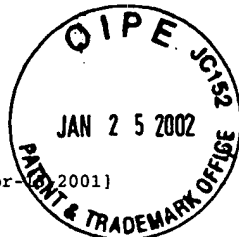
14. Western blot (Western hybridization, Western blotting)**Definition:**

A technique similar to Southern blotting, though it is used for proteins.

END

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DEX0075_1_vs_wo9639419_blastn

1

BLASTN 2.2.1 [Apr-12-2001]

Reference: Altschul, Stephen F., Thomas L. Madden, Alejandro A. Schaffer, Jinghui Zhang, Zheng Zhang, Webb Miller, and David J. Lipman (1997), "Gapped BLAST and PSI-BLAST: a new generation of protein database search programs", Nucleic Acids Res. 25:3389-3402.

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(2609 letters)

Database: wo9639419.nt
13 sequences; 9280 total letters

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Sequences producing significant alignments:	Score (bits)	E Value
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AAT45886 WO9639419-A1 PA (HUMA-) HUMAN PR 06-JUN-1995 PF 06-JUN-...	22	4.6
AAT45883 WO9639419-A1 PA (HUMA-) HUMAN PR 06-JUN-1995 PF 06-JUN-...	22	4.6
AAT45892 WO9639419-A1 PA (HUMA-) HUMAN PR 06-JUN-1995 PF 06-JUN-...	22	4.6
AAT45889 WO9639419-A1 PA (HUMA-) HUMAN PR 06-JUN-1995 PF 06-JUN-...	22	4.6

>AAT45880 WO9639419-A1 PA (HUMA-) HUMAN PR 06-JUN-1995 PF
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Length = 638

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Identities = 13/13 (100%)
Strand = Plus / Plus

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Sbjct: 105 actcaccaccttt 117

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Identities = 11/11 (100%)
Strand = Plus / Plus

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Sbjct: 382 gatggctccct 392

>AAT45888 WO9639419-A1 PA (HUMA-) HUMAN PR 06-JUN-1995 PF
06-JUN-1995 Human colon specific gene CSG9 cDNA
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Identities = 13/13 (100%)
Strand = Plus / Plus

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Strand = Plus / Minus

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Sbjct: 329 tttgaaggcat 318

>AAT45881 WO9639419-A1 PA (HUMA-) HUMAN PR 06-JUN-1995 PF

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2

06-JUN-1995 Human colon specific gene CSG2
fragment. [Homo sapiens.]
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Identities = 12/12 (100%)
Strand = Plus / Minus

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3

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Sbjct: 438 gaaaaataact 428

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Identities = 11/11 (100%)
Strand = Plus / Minus

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Number of sequences in database: 13

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Gapped Lambda	K	H
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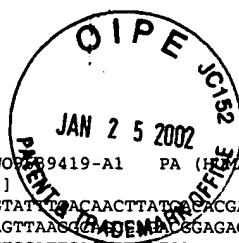
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4

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A: 40
X1: 6 (11.9 bits)
X2: 15 (29.7 bits)
S1: 12 (24.3 bits)
S2: 11 (22.3 bits)

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wo9639419.nt

1

>AAT45884 WO9639419-A1 PA (HUMA-) HUMAN PR 06-JUN-1995 PF 06-JUN-1995 Human colon specific gene CSG5 cDNA partial clone. [Homo sapiens.]

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>AAT45885 WO9639419-A1 PA (HUMA-) HUMAN PR 06-JUN-1995 PF 06-JUN-1995 Human colon specific gene CSG6 cDNA partial clone. [Homo sapiens.]

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>AAT45887 WO9639419-A1 PA (HUMA-) HUMAN PR 06-JUN-1995 PF 06-JUN-1995 Human colon specific gene CSG8 cDNA full-length clone. [Homo sapiens.]

CAGGAGGGAGAGCCTTCCCCAAGCAAAATCCAGAGCAGCTGTGCAAAACACCGTGCAT
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>AAT45888 WO9639419-A1 PA (HUMA-) HUMAN PR 06-JUN-1995 PF 06-JUN-1995 Human colon specific gene CSG9 cDNA full-length clone. [Homo sapiens.]

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GGTTTGACGGCTGGGACAAGGTGGTCTTCAACACGTTCAGGGCGGGAGTGGGGCAGCG
AGGAGAGGAAGAGGAGCATGCCCTTCAAAAAGGGTGCCGCTTTGAGCTGGTCTTCATAG
TCCTGGCTGAGCAGTACAAGGTGGTGGTAAATGGAAATCCCTTCTATGAGTACGGGCACC
GGCTTCCCTACAGATGGTCAACCCAGTGAAGTGGATGGGGATCTGCAACTTCAATCAA
TCAACTTATCGGAGGCCAGCCCCCTCCGGCCCCAGGGACCCCGATGATGCCACTTACC
CTGGTCCCGGACATTGCCATCAACAGCTGAACAGCCTGCCACCATGGAAGACCCCCAA
CCTTCAACCCGCTGTGCCATATTTCCGGGAGGCTGCAAGGAGGGCTCACAGCTCGAAGAA
CCATCATCATCAAGGGCTATGTGCTTCCACAGGCAAGAGCTTTGCTATCAACTTCAAG
TGGGCTCTCAGGGGACATAGCTCTGCACATTAATCCCCGATGGGCAACGATACCGTGG
TCCGGAACAGCCTTCTGAATGGCTCGTGGGGATCCGAGGAGAAGAAGATCACCAACACC
CATTTGGTCCCGGACAGTTCTTTGATCTGCTCCATTCGCTGTGGCTTGGATCGCTTCAAG
TTTACGCCAATGGCCAGCACCTCTTGAATTTGCCATTCGCTCTCGGCTTCCAGAGGG
TGGACACATTGGAATCCAGGGTGTATGCACCTTGTCTATGTCCAGATCTAATCTATTCT
CTGGGCCATAACTCATGGGAAACAGAAATATCCCTTAGGACTCCTTTCTAAGCCCTTA
ATAAATGTCTGAGGGTGTCTCAAAAAA

>AAT45889 WO9639419-A1 PA (HUMA-) HUMAN PR 06-JUN-1995 PF 06-JUN-1995 Human colon specific gene CSG10 cDNA partial clone. [Homo sapiens.]

GTTGATATTAACACAGTGAAACCAACATGACACCTCTCTGAAACCTATTAGTGTCTCC
TACAACCCAGCCACAGCAAGAAATATCAATGTGGGCATTCCTTCCATGTAAATTTT
GAGGACAACGATAACCGATCAGTGTGAAAGGTGGTCTTCTCTGACAGCTACAGGCTC
TTTCAGTTCCATTTTCACTGGGGCAGTACAATGAGCATGGTTTCAAGATACAGTGGAT
GGAGTCAAAATATTCTGCCAGCTTCACGTGGCTCACTGGAATTTGCAAAAGTACTCCAGC
CTTGTGAAAGCTGCTCAAGGCTGATGGTTTGGCAGTTATTTGTGTTTGTGAAAGGTT
GGTGAAGCCAAACCAAGCTGCAGAAAGTACTTGTATGCCCTTCCAGCAATTAACCAAG
GGCAACAGAGCCCATTCACAAATTTTGACCCCTTACTCTCTCTTCTTCTATCTCTGGAT
TTCTGGACCTACCTGGCTCTGACTCATCTCTCTTTATGAGAGTGAACCTGGATC
ATCTGTAAGGAGAGCATCAGTGTCAAGTTCAGAGCAGTTGGCACAATCCGGAGCCTCTCA
TCAAT

>AAT45891 WO9639419-A1 PA (HUMA-) HUMAN PR 06-JUN-1995 PF 06-JUN-1995 Human colon specific gene CSG12 cDNA partial clone. [Homo sapiens.]

GTGGCAGAGAAAGATAGGTTGGAGACAATTGATTGCTCGATGATATAAAATGTTAAGTA
CCATGAATGNATGCTGTTAGGCTGGAATGCGCCAAAGATAAAAGTGGGGCATGGCATCAA
AAGGTAGGTCACATATTAATAATTCCATGTATTGAAATATCCAGAAAATATATAGACA
GATCTATAGAGATAGAACTGGTCTGCCAGGACTAGGGGTTGTCTAAGGATAAGGAGCT
TCTTTTGTGGATGGTGAAATAACCTAAATATATTGCGCAATTTTTCACAACTTTGTG
GAATATATTAACCCGGTAAATTTGTAATCTCAATAATGTCTCTCTTAAATTTAAGC
GTTTNTCTGGACAAGAAAAGGGAAGNACCAAGGGGNAAAAATTTT

>AAT45892 WO9639419-A1 PA (HUMA-) HUMAN PR 06-JUN-1995 PF 06-JUN-1995 Human colon specific gene CSG13 cDNA partial clone. [Homo sapiens.]

GCCCTGGGCTTTGGGGGGTCCCAACATGGTATGCAGAAATGTGATGGTTACAGGTCAG
TACAACCTCAGTCTTAGAACCCCTCCACACTCAGCTCTGCACCCACTTCTCTGTCAAT

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2

TATTATATAGGACTGTAGTCTTTTCTAGTTCGAGAGCCTTTCGAAGCTTAATTTATATT
CTTTCTTTGTACCTTTTCTAAAATTACCAAAGATATTACACAAGGTAATTAATGTT
CTCTGTTTATGCTTTATCTGATGGAGCAAAATATCTCTTATTGTTGATCAAGGGGGC
AAAAGAAATTTAGAGGCAAAATGAACAAGCGATAGGCTATTGCAACCTGAGAAAGAGAACTG
NTCCCTTCCATCGTAAATTTAGNAGNCCAAAGTAGGTAATGGGAACCAAAGTTGTTACTTTT
TCTAGTAGTATTCTTTTCCCTTTTNNNTTTTGTGTACCTCTTACAGNCCCAAACT
CCATTCTCTTTAAAGGGGTTTATGGGGCGCTTACTGCAGGTAAATAATGGGGNCCAC
CATTTTAAAGGGGGCTACCAGAAGGGAGGGGGTCCCNNTNCNAAAAAAAAAATTG

>AAT45880 WO9639419-A1 PA (HUMA-) HUMAN PR 06-JUN-1995 PF 06-JUN-1995 Human colon specific gene CSG1 partial cDNA clone. [Homo sapiens.]

GCCAGGCAGCTGGCTGCCSACCAGGCCGTGTATGTGAAGGTCAAGGCTGAAGCCCGGAA
CTGCTGGGCCACCCGTTGCTCTGTGTCTGTCTGTGGGTGCCAACTCACCACCTTTGAT
GGGGCCCGTGGTGCCACCACTCTCTGTGTCTATGAAGCTCTCTTCCCGCTGCCAGGA
CTACAGAATACCATCCCTGGTACCCTGTAGTTGCCGAAGTCCAGATCTGCCATGGCAAA
ACGGAGGCTGTGGGCCAGGTCCACATCTTCTTCCAGGATGGGATGGTGACGTTGACTCCA
AACAAGGCTGTGTGGGTGAATGGTCTCCGAGTGGATCTCCAGCTGAGAAGTTAGCATCT
GTGTCCGTGAGTCTGTACACCTGATGGCTCCCTGTAGTCCGCCAGAAGCAGGGGTCCAG
GTGTGGCTTGGAGCCAATGGGAAGGTGGCTGTGATTGTGAGCAATGACCATGCTGGGAAA
CTGTGTGGGGGCTTGTGAAATTTGACGGGGGACCAGACCAATGATTGGGATGATCCC
AGGAGAAGCCAGCGATTGGGGAATWGAGAGCGCAGGGACTTCTYCCMCATGTTAATGG
GCTTGWTCAGTTTATCCCAACCAGGAACGAAGGATTTT

>AAT45881 WO9639419-A1 PA (HUMA-) HUMAN PR 06-JUN-1995 PF 06-JUN-1995 Human colon specific gene CSG2 fragment. [Homo sapiens.]

CAGGACTGCGTGTGCACGGACAAGGTGGACAACAACCCCTGCTCAACGTCATCGCCTGC
ACCCACGTGCCCTGCAACACCTCTGACGCCCTGGGTTCGAACCTATGGAGGCCCGGGG
GAGTGTCTGAAGAAGTGTGAACAGACGCACTGTATCATCAAACGGCCGACAACCAGCAC
GTCACTCTGAAGCCCGGGGACTTCAAGAGCGACCCGAAGAACAATGCACATTTCTCAGC
TGCGTGAAGATCCACAACCACTCATCTCGTCCGTTTCCAACATCACCTGCCCAACTTT
GATGCCAGCATTTGCATCCCGGCTCCATCACATTCATGCCCAATGGATGCTGCAAGACC
TGACCCCTCGCAATGAGACCAGGTGGCTGCTGCCACCGTCCCGTCAACACGGAGGTT
TCGTACGCCGCTGCACCAAGACCGTCTCATGAATCATTTGCTCCGGGTCTGCGGGACA
TTTGTATGTACTCGGCCAAGGCCAGGCCCTGGACCACAGCTGCTCTGTGCAAGAG
GAGAAAACCAAGCCAGCGTGAGGTGGTCTGAGCTGCCCAATGGCGGCTCGCTGACACAC
ACCTACACCCACATCGAGAGCTGCCAGTGGCAGGACACCGTCTGCGGGCTCCCCACCGGC
ACCTCCCCCGGGCCCGCGCTTCCCTTAGGCATCTGGGAGCGGGTGAGCGGGGTGGGCA
CAGCCCCCTCACTGCCCCGACAGCTTTACCTCCCCGAGCCCTCTGAGCCTCCTAAGCT
CGGCTTCTCTCTTCAATATTTATTGTCTGAGTTTGTGTGCTCCTTGTCTTCCAATA
ATAAACTCAGGGGACATGCAAAAAAAAAAAAAA

>AAT45883 WO9639419-A1 PA (HUMA-) HUMAN PR 06-JUN-1995 PF 06-JUN-1995 Human colon specific gene CSG4 cDNA partial clone. [Homo sapiens.]

ATGAGTCTGTGAAAAACAATGTGGGCAGAGGCCTAAACATCGCCCTGGTGAATGGAACC
ACGGGAGCTGTGCTGGGACAGAAGGCATTTGACATGTACTCTGGAGATGTTATGCACCTA
GTGAAATTCCTTAAAGAAATTCGGGGGGTGCACTGGTGTCTGGTGGCTCTTACGACGAT
CCAGGGACCAAAATGAACGATGAAAGCAGGAACTCTTCTCTGACTTGGGCAGTTCTTAC
GCAAAACAATGGGCTTCCGGGACAGTGGGTCTTCAATAGGAGCCAAAGACCTCAGGGGT
AAAAGCCCTTTGAGCAGTTCTTAAAGAACAGCCAGACACAAACAAATACGAGGGATGG
CCAGAGCTGCTGGAGATGGAGGGCTGCATGCCCCGAAGCCATTTTAGGGTGGCTGTGGC
TCTTCTCAGCCAGGGGCTGAAGAAGYTCTGCTGCTGATAGGAGTCANAGCCCGGAG
GCTGNAGGAGGAGGAGCAGGGGGTCTGCGTGGAGGTGCTGCAGGCCCTTGACGCTGTG
TCGCGCCT

>AAT45886 WO9639419-A1 PA (HUMA-) HUMAN PR 06-JUN-1995 PF 06-JUN-1995 Human colon specific gene CSG7 cDNA partial clone. [Homo sapiens.]

TAAACTTGCTGTTTTGTTCTGTGTCTTTGTCTTTGGTTGGTATTTTCAGTAAGTTTGGT
ATTCTCAAATTTTATCTAAATGGATAAACTATTAAACATAGAACAATAAACCCCAATTCTCC
ATTTTCATTTTCTCTTAGGCATGAATCATACAAAACCTCAATATAGAGCAATGTTGTAAAT
GAATTGTTCTATTAAACAAGAGGAGGTTCTAAGATATAAGCCCTCAGAGAACAGGAAGAA
AAGGCGGTCCATAGAAGATGAGGTCTAACCGGAAGATGCTGCTGAGAAGCGAGAGAC
AGATGTGGAAGAAATCTATCACCAGTCATGTGCACTGAATGTTCCACTGAAGTGGCAGT
TTACGACAAGGATGAAGTCTTTCATTTTCAATGTTTATGCAAGCCATTCTTAACAGC
CCAATGGCATTTAATTACCCAATCTGTATATAAGGCAAAATATGGACAGTTACTTTCTCT
CTTGCTGTTTCATATCTTCACTGACATTTAGGAAGCAGTGTCTCTTTTAAAGGGGA
ATAGTTGTCACCTTCATTCATCTTACATCTTTACCCCTCTCTTTTCTTTCTTTG
ATTTTCCCCCTTATTGATGGGACTGATATTCAATCTGTTTGTGATGAACATTTGGAACCT
GTCGGGCTTTTATTAAGCTCTGTAGAATTAAATGTTCTGGAATTAT

>AAT45890 WO9639419-A1 PA (HUMA-) HUMAN PR 06-JUN-1995 PF 06-JUN-1995 Human colon specific gene CSG11 cDNA partial clone. [Homo sapiens.]

CGGCTCCGGGCGGGCGTGGCCAGTGACTAGAAGGCGAGGCGCCGCGGGACCATGGCGGGC
GCGGCGGACGAGCGGAGTCCAGAGGCGAGAAGACGAGGAAGAGGAGGAGCAGTTGGTCT
GGTGAATTATCAGGAATTTATGATTCAGACTTCTCTCAAAAATGTGAAAAATAATGCA
GGTTTGGGCATTGACACTGAGAGGCCCATCTGCGCAATGGACAGCTGTGTCTTGTCTGG
GGAGTATGAAGACTCTAGGACCTGTGTATATTTGAAGAAAATGTTGAACATGCTGA
TACAGAAGCAATAATAAAAAAGTGTGCTAAAAATATAAATGCCATACAAATGAAGAAGCTCAG
CATGACAAGAACTCTCTGACAGAGAAGGAAGGAAGGAAGAAACATAGGTGGGGTGG
ATGGCTGCAATAAGGATATGGTTCTCCCTTTGACCAACAGGTTTGTAACTTTTCTA
CCATGAAATTGAGGACGAGGAAGTGGTAGCTTTTCCAGCCCGTTAAATCTTTGGATTGGG
AGGGGGTGGGTTCAATG

>AAT45882 WO9639419-A1 PA (HUMA-) HUMAN PR 06-JUN-1995 PF 06-JUN-1995 Human colon specific gene CSG3 fragment. [Homo sapiens.]

ATTGGTGTACCTGGCTCTCTGTCTCTGACGCTCTACAGGTGAGGCCAGCAGAGGGAG
TAGGGCTCGCCATGTTTCTGGTGTGAGCAATTTGGCTGATCTTGGCTGTCTGAACAGCTAT
TGGGTCCACCCAGTCCCTTTTCACTGCTGTCTTAAATGCCCTGCTCTCTCCCTGGCCACC
TTATAGAGAGCCAAAGAGCTCTGTAAAGGGGAGAACTCTATCTGTGGTTTATAATCTT
GCACGAGGCACCAAGTCTCCCTGGGTCTTGTGAATGAATACATTTATCCCCCTTCTCT
GCCCCAACCAACAATCTTTCTTCAAAAGAGGGCTGCTTGGTTCCCTCCACCAACTGC
ACCATGAGATCGGTCCAAGAGTCCATTTCCAGGTGGGAGCCAACTGTCAAGGAGGCTCT
TCCACCAACATCTTTCAGTTGCTGGGAGGTGACCATAGGGCTCTGCTTTTAAAGATAT
GGCTGCTTCAAGGCCAGAGTCACAGGAAGGACTTCTTCCAGGGAGCTTATGTTGTGATGG

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AGAGGAGAGTTAAAAAGACCTCATGTCCTTCTTGTCACGGTTTGTGAGTTTTCACCTC
TTCTAATGCAAGGGTCTCAGACTGTGAACCACTTAGGATGTGATCACTTTCAGGTGGCCA
GGAATGTTGAATGTCTTTGGCTCAGTTCATCTAAAAAGATATCTATTTGAAAGTTCTCA
GAGTTGTACATATGTTTCACAGTACAGGATCTGTACATAAAAGTTCTTTCTTAAACCAT
TCACCAAGAGCCAATATCTAGGCATTTCTCGGTAGCACAAATTTCTNATGCTTAGAA
AATTGTCCTCCCTGTTCTTTCTGTCTGNAGACTTAAGTGAGTTAGGCTTTAAGGAAAGC
AACGCTCCTCTGAAATGCTTGTCTTTTCTGTGTCGCGAAATAGCTGGTCTTTTCTGGG
AGTTAGATGTATAGAGTGTGTTGTATGTAAACATTTCTTGTAGGCATCACCATGAACANAG
ATATATTTTCTATTTANTTANTATATGTGCACTTCAAGAAGTCACTGTCAGAGAAATAAA
GAATTGTCTTAAATGTCATGATTTGGAGATGTCCTTTGCATTGCTTGGAAAGGGGTACCT
AGAGCCAAGGAAATTGGCTCTGGTTTGAAAAATTTTGCTGTTATTATAGTAAACATACA
AAGGATGTC

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1

BLASTN 2.2.1 [Apr 12-2001]

Reference: Altschul, Stephen F., Thomas L. Madden, Alejandro A. Schaffer, Jinghui Zhang, Zheng Zhang, Webb Miller, and David J. Lipman (1997), "Gapped BLAST and PSI-BLAST: a new generation of protein database search programs", Nucleic Acids Res. 25:3389-3402.

Query= DEX0075_1
(2609 letters)

Database: us5733748.nt
15 sequences; 9317 total letters

Searching done

Sequences producing significant alignments:	Score (bits)	E Value
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AAV16668 US5733748-A PA (HUMA-) HUMAN PR 06-JUN-1995 PF 06-JUN-1...	26	0.29
AAV16676 US5733748-A PA (HUMA-) HUMAN PR 06-JUN-1995 PF 06-JUN-1...	26	0.29
AAV16669 US5733748-A PA (HUMA-) HUMAN PR 06-JUN-1995 PF 06-JUN-1...	24	1.2
AAV16680 US5733748-A PA (HUMA-) HUMAN PR 06-JUN-1995 PF 06-JUN-1...	22	4.6
AAV16677 US5733748-A PA (HUMA-) HUMAN PR 06-JUN-1995 PF 06-JUN-1...	22	4.6
AAV16674 US5733748-A PA (HUMA-) HUMAN PR 06-JUN-1995 PF 06-JUN-1...	22	4.6
AAV16671 US5733748-A PA (HUMA-) HUMAN PR 06-JUN-1995 PF 06-JUN-1...	22	4.6

>AAV16668 US5733748-A PA (HUMA-) HUMAN PR 06-JUN-1995 PF
06-JUN-1995 Polynucleotide sequence of a colon-specific
gene. [Homo sapiens.]
Length = 638

Score = 26.3 bits (13), Expect = 0.29
Identities = 13/13 (100%)
Strand = Plus / Plus

Query: 825 actcaccaccttt 837
|||||||
Sbjct: 105 actcaccaccttt 117

Score = 22.3 bits (11), Expect = 4.6
Identities = 11/11 (100%)
Strand = Plus / Plus

Query: 606 gatggctccct 616
|||||||
Sbjct: 382 gatggctccct 392

>AAV16676 US5733748-A PA (HUMA-) HUMAN PR 06-JUN-1995 PF
06-JUN-1995 Polynucleotide sequence of a colon-specific
gene. [Homo sapiens.]
Length = 1121

Score = 26.3 bits (13), Expect = 0.29
Identities = 13/13 (100%)
Strand = Plus / Plus

Query: 1163 ggaagtggggcag 1175
|||||||
Sbjct: 286 ggaagtggggcag 298

Score = 26.3 bits (13), Expect = 0.29
Identities = 13/13 (100%)
Strand = Plus / Minus

Query: 1339 ggattgaagtgga 1351
|||||||
Sbjct: 238 ggattgaagtgga 226

Score = 24.3 bits (12), Expect = 1.2
Identities = 12/12 (100%)
Strand = Plus / Minus

Query: 990 tttgaaggcat 1001
|||||||
Sbjct: 329 tttgaaggcat 318

>AAV16669 US5733748-A PA (HUMA-) HUMAN PR 06-JUN-1995 PF

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06-JUN-1995 Polynucleotide sequence of a colon-specific
gene. [Homo sapiens.]
Length = 874

Score = 24.3 bits (12), Expect = 1.2
Identities = 12/12 (100%)
Strand = Plus / Minus

Query: 69 gtaggtgtgtgt 80
|||||||
Sbjct: 606 gtaggtgtgtgt 595

Score = 22.3 bits (11), Expect = 4.6
Identities = 11/11 (100%)
Strand = Plus / Minus

Query: 1001 tccccctgagt 1011
|||||||
Sbjct: 855 tccccctgagt 845

Score = 22.3 bits (11), Expect = 4.6
Identities = 11/11 (100%)
Strand = Plus / Plus

Query: 2519 agtgtgaacag 2529
|||||||
Sbjct: 134 agtgtgaacag 144

>AAV16680 US5733748-A PA (HUMA-) HUMAN PR 06-JUN-1995 PF
06-JUN-1995 Polynucleotide sequence of a colon-specific
gene. [Homo sapiens.]
Length = 600

Score = 22.3 bits (11), Expect = 4.6
Identities = 11/11 (100%)
Strand = Plus / Plus

Query: 620 ctccattctct 630
|||||||
Sbjct: 479 ctccattctct 489

Score = 22.3 bits (11), Expect = 4.6
Identities = 11/11 (100%)
Strand = Plus / Plus

Query: 1140 atgaacaagcg 1150
|||||||
Sbjct: 319 atgaacaagcg 329

Score = 22.3 bits (11), Expect = 4.6
Identities = 11/11 (100%)
Strand = Plus / Minus

Query: 2192 gaaaaataact 2202
|||||||
Sbjct: 438 gaaaaataact 428

>AAV16677 US5733748-A PA (HUMA-) HUMAN PR 06-JUN-1995 PF
06-JUN-1995 Polynucleotide sequence of a colon-specific
gene. [Homo sapiens.]
Length = 605

Score = 22.3 bits (11), Expect = 4.6
Identities = 11/11 (100%)
Strand = Plus / Minus

Query: 2120 agcttcagcaa 2130
|||||||
Sbjct: 312 agcttcagcaa 302

>AAV16674 US5733748-A PA (HUMA-) HUMAN PR 06-JUN-1995 PF
06-JUN-1995 Polynucleotide sequence of a colon-specific
gene. [Homo sapiens.]
Length = 709

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3

Score = 22.3 bits (11), Expect = 4.6
Identities = 11/11 (100%)
Strand = Plus / Minus

Query: 1180 tcttttgtaaat 1190
 |||||
Sbjct: 201 tcttttgtaaat 191

>AAV16671 US5733748-A PA (HUMA-) HUMAN PR 06-JUN-1995 PF
06-JUN-1995 Polynucleotide sequence of a colon-specific
gene. [Homo sapiens.]
Length = 548

Score = 22.3 bits (11), Expect = 4.6
Identities = 11/11 (100%)
Strand = Plus / Minus

Query: 78 tgtttttcaca 88
 |||||
Sbjct: 19 tgtttttcaca 9

Score = 22.3 bits (11), Expect = 4.6
Identities = 11/11 (100%)
Strand = Plus / Plus

Query: 1106 tgttatgcacc 1116
 |||||
Sbjct: 108 tgttatgcacc 118

Score = 22.3 bits (11), Expect = 4.6
Identities = 11/11 (100%)
Strand = Plus / Plus

Query: 512 gctggtggcct 522
 |||||
Sbjct: 159 gctggtggcct 169

Score = 22.3 bits (11), Expect = 4.6
Identities = 11/11 (100%)
Strand = Plus / Plus

Query: 2146 agttcttaaag 2156
 |||||
Sbjct: 317 agttcttaaag 327

Score = 22.3 bits (11), Expect = 4.6
Identities = 11/11 (100%)
Strand = Plus / Plus

Query: 1577 ggagatggagg 1587
 |||||
Sbjct: 372 ggagatggagg 382

Database: us5733748.nt
Posted date: Jan 24, 2002 1:37 PM
Number of letters in database: 9317
Number of sequences in database: 15

Lambda	K	H
1.37	0.711	1.31

Gapped Lambda	K	H
1.37	0.711	1.31

Matrix: blastn matrix:1 -3
Gap Penalties: Existence: 5, Extension: 2
Number of Hits to DB: 19
Number of Sequences: 15
Number of extensions: 19
Number of successful extensions: 19
Number of sequences better than 10.0: 8
length of query: 2609
length of database: 9317

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effective HSP length: 12
effective length of query: 2597
effective length of database: 9137
effective search space: 23728789
effective search space used: 23728789
T: 0
A: 40
X1: 6 (11.9 bits)
X2: 15 (29.7 bits)
S1: 12 (24.3 bits)
S2: 11 (22.3 bits)

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us5733748.nt

1

>AAV16681 US5733748-A PA (HUMA-) HUMAN PR 06-JUN-1995 PF 06-JUN-1995 PCR primer used to amplify cloned colon-specific genes. [Homo sapiens.]
ATGCTTCCGGCTCGTATG

>AAV16682 US5733748-A PA (HUMA-) HUMAN PR 06-JUN-1995 PF 06-JUN-1995 PCR primer used to amplify cloned colon-specific genes. [Homo sapiens.]
GGGTTTCCAGTCACGAC

>AAV16670 US5733748-A PA (HUMA-) HUMAN PR 06-JUN-1995 PF 06-JUN-1995 Polynucleotide sequence of a colon-specific gene. [Homo sapiens.]
ATTGGTGCTACCTGGCTCTCCTGTCTCTGCAGCTCTACAGGTGAGGCCAGCAGAGGGAG
TAGGGCTCGCCATGTTTCTGGTGAGCCAAATTGGCTGATCTTGGGTGCTGAACAGCTAT
TGGGTCCACCCAGTCCCTTTCAGCTGCTGCTTAATGCCCTGCTCTCTCCCTGGCCACCC
TTATAGAGAGCCCAAAGAGCTCCTGTAAAGAGGGAGAACTCTATCTGTGGTTTATAATCTT
GCACGAGGCACCAAGTCTCCCTGGGTCTTGTGAATGAACATACATTATCCCTTTCTCT
GCCCCAACCCAACTCTTCTCTCAAAGAGGGCTGCCTGGTTCCTCCACCCCACTGC
ACCATGAGATCGGTCCAAGAGTCCATTCCCCAGGTGGGAGCCAACTGTCAGGGAGGTCTT
TCCCACCAACATCTTTCAGTTGCTGGGAGGTGACCATAGGGCTCTGCTTTTAAAGATAT
GGCTGCTTCAAAGGCCAGAGTCACAGGAAGGACTTCTTCCAGGGAGATTAGTGGTGATGG
AGAGGAGAGTTAAATGACCTCATGTCTTCTTGTCCACGGTTTGTGAGTTTCTACTC
TTCTAATGCAAGGGTCTCAGACTGTGAACCACTTAGGATGTGATCACTTTCAGGTGGCCA
GGAAATGTTGAATGCTTTGGCTCAGTTTCACTTAAAGAGATATCTATTGAAAGTTCTCA
GAGTTGTACATATGTTTACAGTACAGGATCTGTACATAAAAGTTTCTTCTTAAACCAT
TCACCAAGAGCCAAATATCTAGGCATTTCTCGGTAGCACAAATTTCTTATGCTTAGAA
AATTGCTCTCCTGTTCTTCTGTCTGNAGACTTAAGTGAGTTAGGCTTTAAGGAAAGC
AACGCTCCTCTGAAATGCTTGTCTTTTCTGTGCGGAAATAGCTGGTCTTTTTCGGG
AGTTAGATGTATAGAGTGTGTTGATGTAAACATTTCTTGTAGGCATCACCATGAACANAG
ATATATTTCTATTANTANTATATGTGCACTTCAAGAGTCACTGTCAGAGAAATAAA
GAATTGCTTAAATGTCATGATGGAGATGCTCTTGCATTTGCTTGGAAAGGGGTGACCT
AGAGCCAAGGAAATGGCTCTGGTTTGAAAAAATTTGCTGTATTATAGTAAACATACA
AAGGATGTC

>AAV16671 US5733748-A PA (HUMA-) HUMAN PR 06-JUN-1995 PF 06-JUN-1995 Polynucleotide sequence of a colon-specific gene. [Homo sapiens.]
ATGAGTCTGTGAAAAACAATGTGGGCAGAGGCCATAACATCGCCCTGGTGAATGGAACC
ACGGGAGCTGTGCTGGGACAGAAGCATTTGACATGTACTCTGGAGATGTTATGCACCTA
GTGAATTTCTTAAAGAAATTCGGGGGGTGCCTGGTGGTGGCTCCTACGACGAT
CCAGGGACCAAAATGAACGATGAAAGCAGGAACTCTTCTCTGACTTGGGGAGTTCTCTAC
GCAAAACAACCTGGGCTTCCGGGACAGCTGGGTCTTCATAGGAGCCAAAGACCTCAGGGGT
AAAAGCCCCCTTGTAGCAGTTCTTAAAGAACAGCCAGACACAAACAAATACGAGGGATGG
CCAGAGCTGTGAGATGGAGGGCTGCATGCCCGGAAAGCCATTTTAGGGTGGCTGTGGC
TCTTCTCAGCCAGGGGCTGAAGAAGTCTCTGCTGCATTAGGAGTCANAGCCCGGACG
GCTGNAGGAGGAGGAGCAGGGGGTGTGCTGCGTGAAGGTGCTGCAGGCCCTTGCACGCTGTG
TCGCGCCT

>AAV16672 US5733748-A PA (HUMA-) HUMAN PR 06-JUN-1995 PF 06-JUN-1995 Polynucleotide sequence of a colon-specific gene. [Homo sapiens.]
TGCTACTCAAGGTATTTTCAACCTTATGACACGAATGGTAGATACAGTGTAAAAGTGCG
GGCTCTGGGAGGAGTTAACGCAGCCAGACGGAGAGTGATACCCAGCAGAGTGGAGCACT
GTACATACCTGGCTGGATTGAGAAATGATGAAATACAATGGAATCCACCAAGACCTGAAAT
TAATAAGGATGATGTTCAACACAAGCAAGTGTTTTCAGCAGAACATCCTCGGAGGCTC
ATTTGTGGCTTCTGATGTCCCAATGCTCCCATACCTGATCTCTTCCACCTGGCCAAAT
CACCAGCTGAAGGCGGAAATTCACGGGGGAGTCTCATTAATCTGACTTGGACAGCTCC
TGGGGATGATATGACCATGGAACAGCTCACAAGTATATCATTCGAATAAGTACAAGTAT
TCTTGATCTCAGAGACAAGTTCAATGAATCTCTTCAAGTGAATACTACTGCTCTCATCCC
AAAGGAAGCCAACTCTGAGGAAGTCTTTTGTGTTTAAACCAGAAAACATTACTTTTGAAA
TGGCAGAGATCTTTTCATTGCTATTCAGGCTGTTGATAAGGTGATCTGAAATCAGAAAT
ATCCAACATTGCACGAGTATCTTTGTATTCTTCCACAGACTCCCGCAGAGACACCTAG
TCCTGATGAAACGCTGCTCCTTGTGCTAATATTCATATCAACAGCACCATTCTTGGCA
TTCACATTTTAAATAATATGTTGAAGTGGGTAGGAGAACTGCAGTTGTCAATAGNCTAGG
GGTGAATTTTGTGCGGTGAATAAATAATSATTTTTCANCTTTTGTGRTTATAAAAAA
CGGNTNCCCATTTGGGNNNTNNGNGGGGGNNNTTTAA

>AAV16673 US5733748-A PA (HUMA-) HUMAN PR 06-JUN-1995 PF 06-JUN-1995 Polynucleotide sequence of a colon-specific gene. [Homo sapiens.]
AGTCGCTCTCTAGCCCTTCTCTGTGCCTCACCTCTGGCAATGCCATTACGGCCAGGTC
TTCTCTCTATAGTGGAGAGTATGGAGGTGGTGGTGGAAAGCGATTTCTCTATTCTGGCAA
CCAGTTGGACGGCCCATCACCAGCCCTCCGGGTCAGTCAACACATACTACATCGTAGG
TCTTCAGGTGCGCTATGGCAAGGTGTGGAGCGACTATGTGGTGGTTCGCAACGGAGACCT
GGAGGAGATCTTTCTGCACCTGGGGAATCAGTGATCCAGGTTTCTGGGAAGTACAAGTG
GTACCTGAAGAAAGCTGGTATTTGTGACAGACAAGGGCCGCTATCTGTCTTTTGGGAAAGA
CAGTGGCACAAGTTTCAATGCGCTCCCTTGCACCCCAACACCGTGTCCGCTTCATCAG
TGGCCGGTCTGGTTCTCTATCGATGCCATTGGCCTGCACTGGGATGTTTACCCCACTAG
CTGCAGCAGATGCTGAGCCTCTCTCTTGGCAGGGGCACTGTGATGAGGAGTAAGAACT
CCTTATCACTAACCCCATC

>AAV16674 US5733748-A PA (HUMA-) HUMAN PR 06-JUN-1995 PF 06-JUN-1995 Polynucleotide sequence of a colon-specific gene. [Homo sapiens.]
TAAACTTGCTGTTTGTTCCTGTGCTTGTCTTTGGTTGGTATTTCAGTAAGTTTGGGT
ATTCTCAAAATTTATCTAAATGGATAAACTATTAACTAGAACATAAACCCCAATTTCTCC
ATTTCAATTTTCTCTTAGGCATGAATCATACAAAACCTCAATATAGAGCAATGTTGTAAAT
GAATTGTTCTATTAAACAAGAGGAGGTTCTAAGATATAAGCCCTCAGAGAACAGGAAGAA
AAGCGGGTCCATAAGAAGATGAGGTCTAACCGGGAAGATGCTGCTGAGAAGGCAGAGAC
AGATGTGGAAGAAATCTATCACCCAGTCATGTGCACTGAATGTTCCACTGAAGTGGCAGT
TTACGACAAGGATGAAGTCTTTCAATTTTCAATGTTTACGAAGCCATTCTTAAACAGC
CAAACCTGGCATTTAATACCAATACCTGTATATAAGGCAAAATATGGACAGTTACTTTCTCT
CTTGCTGTTTATATCTTTCAGTGACATGAGGAAGCAGTGTCTCTTTTAAAGGGGA
ATAGTTGTCAACCTTCATTCATCTCTTACATCTTTCACCTCTCTCTTTTCTTCTTTG
ATTTTCCCCCTTATGATGGGACTGATATTCTGTTTGTGATGAACATTTGGAAACT
GTCGGGCTTTTATTAAGCTCTGTAGAATTAATGTTCTGGAATTAT

>AAV16675 US5733748-A PA (HUMA-) HUMAN PR 06-JUN-1995 PF 06-JUN-1995 Polynucleotide sequence of a colon-specific gene. [Homo sapiens.]
CAGGAGGGAGAGCCTTCCCCAAGCAAACTCCAGAGCAGCTGTGCAAAACACGGTGCAT
AAATAAGGCCCTCTGGACCATGAATGCGAGTCCGCTGAGCTGCGTACCGAGCCACGGT

GGTCATGGCTGCCAGAGCGCTCTGCATGCTGGGGCTGGTCTGGCCTTGCTGTCTCCAG
CTCTGCTGAGGAGTACGTGGGCTGTCTGCAAAACAGTGTGCCGTGCCAGCCAAAGACAG
GGTGGACTGGGCTACCCCATGTCAACCCCAAGGAGTGCAACAACCGGGGCTGCTGCTT
TGACTCCAGGATCCCTGGAGTGCCTTGGTGTTCAGGCCCTGACAGGGAAGCAGGAATG
CACCTTCTGAGGCACCTCCAGCTGCCCGCCGGCCGGGGATGCGAGGCTCGGAGCACCTC
TGCCCGGCTGTGATTGCTGCCAGGCACTGTTTATCTCAGCTTTTCTGTCCCTTTGCTCCC
GGAAGCGCTTCTGTGAAAGTTTATATCTGGAGCCTGATGTTTAACTAGTCCCATGCTC
CACCCGAAAAAAAAAAAAAAAAAAAAA

>AAV16676 US5733748-A PA (HUMA-) HUMAN PR 06-JUN-1995 PF 06-JUN-1995 Polynucleotide sequence of a colon-specific gene. [Hom
o sapiens.]

AAGCTCTTCTCAGAGACCAGCCACTAGCGCAGCTCGAGCGATGGCCTATGTCCCGGCAC
CGGGCTACCAGCCACCTACAACCCGACGCTGCTTACTACCAGCCATCCCGGCGGGC
TCAACGTGGGAATGTCTGTTTACATCCAAGGAGTGCCAGCGAGCACATGAAGCGGTTCT
TCGTGAACCTTTGTGGTTGGGCAAGATCCGGGCTCAGACGTGCGCTTCCACTTCAATCCGC
GGTTTGGCGGCTGGGACAAGGTGGTCTTCAACACGTTGCAGGCGGGGAAGTGGGCGAGCG
AGGAGAGGAAGAGGAGCATGCCCTTCAAAAAGGGTGCCGCTTTGAGCTGGTCTTCATAG
TCCTGGCTGAGCACTACAAGGTGGTGGTAAATGGAATCCCTTCTATGAGTACGGGCACC
GGCTTCCCCACAGATGGTCAACCCACCTGCAAGTGGATGGGGATCTGCAACTTCAATCAA
TCAACTTTCATCGGAGGCCAGCCCTCCGGCCCCAGGGACCCCGATGATGCCACCTTACC
CTGGTCCCGGACATTCATCAACAGCTGAACAGCCTGCCACCATGGAAGGACCCCAA
CCTTCAACCCGCTGTGCCATATTTGGGAGGCTGCAAGGAGGCTCACAGCTCGAAGAA
CCATCATCATCAAGGGCTATGTGCTCCACAGGCAAGAGCTTTGCTATCAACTTCAAGG
TGGGCTCCTCAGGGGACATAGCTCTGCACATTAATCCCGCATGGGCAACGGTACCGTGG
TCCGGAACAGCCTTCTGAATGGCTCGTGGGATCCGAGGAGAAGATCACCCACAACC
CATTTGGTCCCGGACAGTCTTTGATCTGCTCATTCGCTGCGCTTGGATCGCTTCAAGG
TTTACGCCAATGGCCAGCACCTCTTTGACTTTGCCCATCGCCTCTCGGCTTCCAGAGGG
TGGACACATTGGAAATCCAGGGTATGTCACCTTGTCTATGTCCAGATCAATCTATTCT
CTGGGGCCATAACTCATGGGAAAAAGAAATATCCCTTAGGACTCCTTTCTAAGCCCTTA
ATAAAATGTCTGAGGGTGTCTCAAAAAAAAAAAAAAAAAAAAAA

>AAV16677 US5733748-A PA (HUMA-) HUMAN PR 06-JUN-1995 PF 06-JUN-1995 Polynucleotide sequence of a colon-specific gene. [Hom
o sapiens.]

GTTGATATTAACACAGTGAACCAACATGACACCTCTCTGAAACCTATTAGTGTCTCC
TACAACCCAGCCACAGCCAAAGAAATATCAATGTGGGGCATTCCTTCCATGTAAATTTT
GAGGACAACGATAACCGATCAGTGTCTGAAAGGTGGTCTTTCTCTGACAGCTACAGGCTC
TTTCACTTCCATTTTCACTGGGGCAGTACAATGAGCATGGTTCAGAACATACAGTGGAT
GGAGTCAAAATATCTGCGGAGCTTCACTGGCTCACTGGAATCTGCAAAAGTACTCCAGC
CTTGTGTAAGCTGCTCAAAAGCTGATGGTTTGGCAGTTATTTGGTGTTTTGTGTAAGGTT
GGTGAAGGCCAACCAAGCTCGCAAAAGTACTTGTATGCCCTTCAAGCAATTAACCAAG
GGCAACAGAGCCCATTCACAAATTTGACCCCTCTACTCTCTCTTCCATCCCTGGAT
TTCTGGACCTACCTTGGCTCTCTGACTCATCTCTCTTTATGAGAGTGAACCTGGATC
ATCTGTAAGGAGAGCATCAGTGTCACTTCAAGAGAGTTGGCACAATCCGGAGCCTTCTA
TCAAT

>AAV16678 US5733748-A PA (HUMA-) HUMAN PR 06-JUN-1995 PF 06-JUN-1995 Polynucleotide sequence of a colon-specific gene. [Hom
o sapiens.]

CGGCTCCGGGCGGGCGTGCCAGTACTAGAAGCGAGGCGCCGCGGACCATGGCGGCG
GCGGCGGACGAGCGGAGTCCAGAGGCGAGAAGACGAGGAAGAGGAGGAGCAGTTGGTTCT
GGTGAATATATCAGGAATATATGATTCAGACTTCTCTCAAAATGTGAAATAAATGCAA
GGTTTGGGCATTTGACACTGAGAGGCCATTTCTGGCAATGGACAGCTGTGTCTTTGTCTGG
GGAGTATGAAGACACTCTAGGGACCTGTGTATATTTGAAGAAATGTTGAACATGCTGA
TACAGAAGGCAATAATAAAACAGTGTCTAAAATATAAATGCCATACAATGAAGAAGCTCAG
CATGACAAGAACTCTCTGACAGAGAAGAAGGAAGGAGAAGAAAACATAGGTGGGGTGG
ATGGCTGCAAAATAAGGATATGGTTTCTCCCTTTGACCAACAGGTTTGTAACTTTTCTA
CCATGAAATTGAGGACGAGGAAGTGGTGTCTTACGCCCTTAAATCTTTGGATTTGGG
AGGGGTTGGGTTTCAATG

>AAV16679 US5733748-A PA (HUMA-) HUMAN PR 06-JUN-1995 PF 06-JUN-1995 Polynucleotide sequence of a colon-specific gene. [Hom
o sapiens.]

GTGGCAGAAAGAAAGTAGGTTGGAGACAATGATTGCTCGATGATATAAATGTTAAGTA
CCATGAATGNATGCTGTAGGCTGGAATGCGCCAAGATAAAAGGTGGGGCATGGCATCAA
AAGGTAGGTCAACATATTAATAATTCATGATATGAAATATCCAGAAAAATATATAGACA
GATCTATAGAGATAGAAACTGGTCTGCCAGGACTAGGGTTGTCTAAGGATAAGGAGCT
TCTTTTGGATGGTGAATAAACCATAAATATATTTGCCATTTGTTGCACAACCTTTGTG
GAATATATTAACCCGGTTAATTGTACTCACTAAAATGTCTCTCTCTTAAATTTAAGC
TGTTTNTCTGGACAAGAAAAGGGAAGNACCAAGGGGNAAAAAATTTT

>AAV16680 US5733748-A PA (HUMA-) HUMAN PR 06-JUN-1995 PF 06-JUN-1995 Polynucleotide sequence of a colon-specific gene. [Hom
o sapiens.]

GCCCTGGGCTTTGGGGGGTCCCAACATGGTATGCAGAAATGTGATGGTTACAGGTGAG
TACAACCTCAGTCTCTAGAACCCCTCCACACTTCAGCTCTGCACCCACTTCTCTGTCTATT
TATTTATATAGGACTGTAGTTTCTTTAGTTCGAGAGCCTTTCGAAGCTTAAATTTATATT
CTTTCTTTGTACCTTTTCTTAAATTTACCAAGATATTTACACAAGGTAAATTAATGTT
CTCTGTTTATATGCTTTATCTGATGGAGGCAAAATATCTCTTATTTGTTGATCAAGGGGGC
AAAAGAAATTTAGAGGCAAAATGAACAAGCGATAGGCTATTGCAACCTGAGAAGAGAACTG
NTCTTCCATCGTAAATTTAGNAGNCCAAGTAGGTAATGGGAACCAAGTTGTTACTTTT
TTCTAGTAGTTATTTTCCCTTTTNNTTTGTGGTACCTCTTACAGNGNCCCAAACT
CCATTTCTTTTAAAGGGGTTTATGGGGGGCTTACTGCAGGTTAAAAATGGGGNCCAC
CATTTTAAAGGGGGCTACCAGAAGGGAGGGGGTCCCNNTTNCNAAAAAAAAAAATTTG

>AAV16668 US5733748-A PA (HUMA-) HUMAN PR 06-JUN-1995 PF 06-JUN-1995 Polynucleotide sequence of a colon-specific gene. [Hom
o sapiens.]

GCCAGGCAGCTGGCTGCCSACCAGGCCGTGTATGTGAAGGTCAAGGCTGAAGCCCGGAA
CTGCTGGGCCACCCGTGGTCTCTGTGCTCTGTGGGTGCCAACTCACCACCTTTGAT
GGGGCCCGTGGTGCCACCACTCTCCTGGTGTCTATGAAGCTCTCTTCCCGCTGCCAGGA
CTACAGAATACCAATCCCTGGTACCGTGTAGTTGCCGAAGTCCAGATCTGCCATGGCAAA
ACGGAGGCTGTGGGCCAGGTCACATCTTCTTCCAGGATGGGATGGTGACGTTGACTCCA
AACAAGGCTGTGGGTGAATGGTCTCCGAGTGGATCTCCAGCTGAGAAGTTAGCATCT
GTGTCGTGAGTCTGACACTGATGGCTCCCTGCTAGTCCGCCAGAAGGCAAGGGTCCAG
GTGTGGCTTGAGAGCAATGGGAAGGTGGCTGTGATTGTGAGCAATGACCATGTGGGAAA
CTGTGTGGGGGCTTGGGAAATTTGACGGGGGACAGACCAATGATTGGGATGATTTCC
AGGAGAAGCCAGCGATTGGGGAATGGAGAGCGCAGGGACTTCTYCCMCATGTTAATGG

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GCTTGWTCAGTTCATCCCACCAGGAACGAAGGATTTT

>AAV16669 US5733748-A PA (HUMA-) HUMAN PR 06-JUN-1995 PF 06-JUN-1995 Polynucleotide sequence of a colon-specific gene. [Homo sapiens.]

CAGGACTGCGTGTGCACGGACAAGGTGGACAACAACACCCTGCTCAACGTCATCGCCTGC
ACCCACGTGCCCTGCAACACCTCCTGCAGCCCTGGGTCGAACTCATGGAGGCCCCCGGG
GAGTGTCTGTAAGAAGTGTGAACAGACGCACTGTATCATCAAACGGCCCGACAACCAGCAC
GTCATCCTGAAGCCCCGGGACTTCAAGAGCGACCCGAAGAACAACTGCACATTCTTCAGC
TGCGTGAAGATCCACAACCAGCTCATCTCGTCCGTTTCCAACATCACCTGCCCCAACTTT
GATGCCAGCATTTGCATCCCGGGCTCCATCACATTATGCCCAATGGATGCTGCAAGACC
TGCACCCCTCGCAATGAGACCAGGGTGCCCTGCTCCACCGTCCCGTCAACCGGAGGTT
TCGTACGCCGGCTGCACCAAGACCGTCCCTCATGAATCATTGCTCCGGGTCCCTGCGGGACA
TTTGTCTATGTACTCGGCCAAGGCCAGGCCCTGGACCACAGCTGCTCCTGCTGCAAGAG
GAGAAAACCAGCCAGCGTGAGGTGGTCTGAGCTGCCCCAATGGCGGCTCGCTGACACAC
ACCTACACCCACATCGAGAGCTGCCAGTGCCAGGACACCGTCTGCGGGTCCCCACCGGC
ACCTCCCGCCGGGCCCGCGTTCCCTAGGCATCTGGGGAGCGGGTGAGCGGGGTGGGCA
CAGCCCCCTTCACTGCCCTCGACAGCTTTACCTCCCCCGACCCCTCTGAGCCTCCTAAGCT
CGGCTTCTCTCTCAGATATTTATTTGTCTGAGTTTTTGTTCAGTCCTTGCTTTCCAATA
ATAAACTCAGGGGGACATGCAAAAAAAAAAAAAA

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GCTGATAGCACAGTCTCTGCCAGACAGGAAAGGCAATAAACTTATTTCATTCACAGGAACTCTTGGGGT
AGGTGTGTGTTTTTCACATCTTAAAGGCTTACAGACCTGCGCTGGACAAATGTTCCATTCTGAAGGAC
CTCTCCAGAAATCCGGATTGCTGAAATCTTCCCTGTGCTAGAGGGCTCCAAACACCTCTTGACAATGG
GAAACTGGGTGGTTAACCACCTGGTTTTCAGTTTGTCTGGTTGTTGGTTAGGGCTGAAATGTTTCCT
GTTTGTGGATGCCCTTCTGAAATATGAGAAGGCGACAAATACTACTACACAAGAAAAATCCTTGGGTCA
ACATTGGGCTGTGCCGAGCGTCTGCTCTCTGCTTGAATTTAACAGCACGCTGATCCTGCTTCTGTGT
GTCGCAATCTGCTGTCTTCTGAGGGGCACCTGCTCATTTGACAGCCGACACATGAGAAAGCAATGGA
TCACAACCTCACCTTCCACAAGCTGGTGGCTATATGATCTGCTTACATACAGCTATTACATCATTGCA
CACCTGTTTAACTTTGACTGCTATAGCAGAAGCCGACAGGCCACAGATGGCTCCCTTGCCTTCCATTCTCT
CCAGCCTATCTCATGATGAGAAAAAGGGGGTCTTGGCTAAATCCCATCCAGTCCCGAAACACGACAGT
GGAGTATGTGACATTCACAGCGTTGCTGGTCTCACTGGAGTGATCATGACAATAGCCTTGATTCTCATG
GTAACCTCAGCTACTGAGTTTACATCCGGAGGAGTTATTTGAAGTCTTCTGGTATACTACCACCTTTT
TCTTCTATATCTTGGCTTAGGGATTACGGCATTTGGTGAATTTGTCGGGGTCAAAACAGAGGAGAGCAT
GAATGAGAGTCATCTCGCAAGTGTGACAGTCTTTTGAAGTGTGGGATGATCGTACTCCCACTGTAGG
CGCCCTAAGTTTGAAGGGCATCCCCCTGAGTCTTGGAAAGTGGATCCTTGCACCGGTCAATCTTATATCT
GTGAAAGGATCCTCCGGTTTACCGCTCCAGCAGAAGGTTGTGATTACCAAGGTTGTATGCAACCATC
CAAAGTTTGGAAATGACAGATGAACAAGCTGGCTTCAGCATGGAAGTGGGGCAGTATATCTTTGTTAAT
TGCCCTCAATCTCTCTCTGGAATGGCATCTTTACTTTGACCTCTGCTCCAGAGGAGGATTTCTTCT
CCATTCATATCCGAGCAGCAGGGGACTGGACAGAAATCTCATAGGGCTTTCGAACAACAATATTACAC
AATCCCAAGATTGAAGTGGATGGTCCCTTTGGCACAGCCAGTGAGGATGTTTCCAGTATGAAGTGGCT
GTGCTGGTTGGAGCAGGAATGGGGTACCCCTTTGCTTCTATCTTGAAATCCATCTGGTACAAATTC
AGTGTGCAGACCACAACCTCAAAACAAAAAGATCTATTTCTACTGGATCTGCAGGGAGACAGGTGCCTT
TTCTTGGTTCAACAACCTGTGACTTCCCTGGAACAGGAGATGGAGGAATTAGGCAAGTGGGTTTCTTA
AACTACCGTCTCTTCTCACCGGATGGGACAGCAATATGTTGGTCATGCAGCATTAACTTTGACAAGG
CCACTGACATCGTGACAGGTCTGAAACAGAAAACCTCCTTTGGGAGACCAATGTGGGCAATGAGTTTTC
TACAATAGCTACCTCCACCCCAAGTCTGTAGTGGGAGTTTCTTATGTGGCCCTCGGACTTTGGCAAAG
AGCCTGCGCAAAATGCTGTACCCGATATTCCAGTCTGGATCCTAGAAAGGTTCAATTCTACTTCAACAAAG
AAAAATTTTGTAGTTATAGGAATAAGGACGGTAATCTGCATTTGTCTCTTTGTATCTTCAGTAATTGAGT
TATAGGAATAAGGACGGTAATCTGCATTTTGTCTCTTTGTATCTTCAGTAATTACTTGGTCTCNTCAGG
TTTGANCAGTCACTTTAGGATAAGGAATGTGCTCTCAAGCCTTGACTCCCTGGTATTCTTTTGTATG
CATTCAACTTCGTTACTTGAGCTTCAGCAACTTAAGAACTTCTGAAGTCTTAAAGTCTGAANTCTTA
AAGCCATGGATCCTTCTCAGAAAAATACTGTAATCTTCTGGACAGCCATGACTGTAGCAAGGCTT
GATAGCAGAAATTTGGTGGTTCAANAATTATACACTAATCCAGGTGATTTTATCAATTCAGTGTACC
ATCTCCTGAGTTTGGTTTGTAACTTTTGTCTCTCCACCCCAAGAAATTTAAGTAGGGTGACTT
TTTAAATAAAAAATTTATTGAATAATTAATGATAAAACATAATAATAAACATAAAATAAACAAAAATTAC
CGAGAACCCTATCCCATATAACACCAACAGTGATGTTTACTGTCACTTTTGATATGGTTTATCCAG
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